

WHAT IS CLAIMED IS:

1. A disc roll comprising:

a plurality of annular disc members each defining a hole and having a peripheral surface; and

a rotary shaft fitted into the holes of said annular disc members by insertion, whereby the peripheral surfaces of said disc members serve as a conveying surface of the disc roll,

wherein said disc members contain a crystalline cordierite-containing ceramic powder, an inorganic fiber and a binder.

2. The disc roll according to claim 1, wherein said disc members contain the crystalline cordierite-containing ceramic powder, the inorganic fiber and the binder in amounts of 20 to 80% by weight, 5 to 50% by weight and 5 to 40% by weight, respectively, based on the total weight of the disc members.

3. A method for producing a disc roll, comprising the steps of:

forming into a plate form a slurry raw material containing a crystalline cordierite-containing ceramic

powder, an inorganic fiber and a binder to obtain a disc member base material;

stamping out a plurality of annular disc members each defining a hole and having a peripheral surface, from said disc member base material; and

fitting said plurality of annular disc members on a rotary shaft by insertion through the holes and fixing said disc members to obtain a disc roll.

4. The method for producing a disc roll according to claim 3, wherein said formation of the disc member base material is conducted by a paper-making process.

5. A plate-shaped disc member base material, comprising a crystalline cordierite-containing ceramic powder, an inorganic fiber and a binder.

6. The disc member base material according to claim 5, containing the crystalline cordierite-containing ceramic powder, the inorganic fiber and the binder in amounts of 20 to 80% by weight, 5 to 50% by weight and 5 to 40% by weight, respectively, based on the weight of the disc member base material.

7. A disc roll comprising:

a plurality of annular disc members each defining a hole and having a peripheral surface; and

a rotary shaft fitted into the holes of said annular disc members by insertion, whereby the peripheral surfaces of said disc members serve as a conveying surface of the disc roll,

wherein said disc members contain an inorganic fiber and an amorphous cordierite.

8. The disc roll according to claim 7, wherein said disc members contain the inorganic fiber and the amorphous cordierite in amounts of 5 to 50% by weight and 20 to 80% by weight, respectively, based on the total amount of the disc members.

9. The disc roll according to claim 7, wherein the amorphous cordierite is partly replaced by a synthetic cordierite.

10. The disc roll according to claim 9, wherein said disc members contain the amorphous cordierite and the synthetic cordierite in a mixing ratio of the former to the latter of 12:1 to 3:10 by weight.

11. The disc roll according to claim 7, wherein said disc members comprises a crystallized product of the amorphous cordierite exists at least in their surface layer portions.

12. A method for producing a disc roll, comprising the steps of:

forming into a plate form a slurry raw material containing an inorganic fiber and an amorphous cordierite to obtain a disc member base material;

stamping out a plurality of annular disc members each defining a hole and having a peripheral surface, from said disc member base material; and

fitting said plurality of annular disc members on a rotary shaft by insertion through the holes and fixing said disc members to obtain a disc roll.

13. The method for producing the disc roll according to claim 12, wherein said slurry raw material further contains a synthetic cordierite.

14. The method for producing a disc roll according to claim 12, wherein said slurry raw material further contains an organic fiber and an organic binder, and said

formation of the disc member base material is conducted by a paper-making process.

15. The method for producing a disc roll according to claim 12, further comprising a step of crystallizing the amorphous cordierite existing at least in surface layer portions of the peripheral surfaces of said disc members by conveying a high temperature article with the disc roll.

16. A plate-shaped disc member base material, comprising an inorganic fiber and an amorphous cordierite.

17. The disc member base material according to claim 16, containing the inorganic fiber and the amorphous cordierite in amounts of 5 to 50% by weight and 20 to 80% by weight, respectively, based on the weight of the disc member base material.

18. The disc member base material according to claim 16, the amorphous cordierite is partly replaced by a synthetic cordierite.

19. A disc roll comprising:

a plurality of annular disc members each defining a hole and having a peripheral surface; and

a rotary shaft fitted into the holes of said annular disc members by insertion, whereby the peripheral surfaces of said disc members serve as a conveying surface of the disc roll,

wherein said disc members is obtained by a process comprising subjecting a disc member base material to crystallization, said disc member base material containing:

a mixture comprising a magnesium oxide source, an aluminum oxide source and a silicon oxide source in a weight ratio of 2:2:5; and

an inorganic fiber.

20. The disc roll according to claim 19, wherein said disc members contain the mixture and the inorganic fiber in amounts of 20 to 80% by weight and 5 to 50% by weight, respectively, based on the total weight of the disc members.

21. A method for producing a disc roll, comprising the steps of:

forming into a plate form a slurry raw material containing a mixture comprising a magnesium oxide source,

an aluminum oxide source and a silicon oxide source in a weight ratio of 2:2:5 and an inorganic fiber to obtain a disc member base material;

heating said disc member base material to crystallize the mixture;

stamping out a plurality of annular disc members each defining a hole and having a peripheral surface, from said crystallized disc member base material; and

fitting said plurality of annular disc members on a rotary shaft by insertion through the holes and fixing said disc members to obtain a disc roll.

22. The method for producing the disc roll according to claim 21, wherein said slurry raw material further contains an organic fiber and an organic binder, and said formation of the disc member base material is conducted by a paper-making process.

23. A plate-shaped disc member base material, containing:

a mixture comprising a magnesium oxide source, an aluminum oxide source and a silicon oxide source in a weight ratio of 2:2:5; and

an inorganic fiber.

24. The disc member base material according to claim 23, containing the mixture and the inorganic fiber in amounts of 20 to 80% by weight and 5 to 50% by weight, respectively, based on the weight of the disc member base material.

25. A method for producing a disc member base material, which comprises subjecting a slurry raw material to a paper-making process.

26. The method for producing a disc member base material according to claim 25, wherein said slurry raw material comprises a crystalline cordierite-containing ceramic powder, an inorganic fiber and a binder.

27. The method for producing a disc member base material according to claim 25, wherein said slurry raw material comprises an inorganic fiber, an amorphous cordierite, an organic fiber and an organic binder.

28. The method for producing a disc member base material according to claim 25, wherein said slurry raw material comprises:



a mixture comprising a magnesium oxide source, an aluminum oxide source and a silicon oxide source in a weight ratio of 2:2:5;

an inorganic fiber;

an organic fiber; and

an organic binder.